Faculty of Dentistry
Dental Public Health

ISSN 1022-4661
Report Series No. 130

Communication between dentists and people with hearing impairment

Communication between Dentists and People with Hearing Impairment

Group 4.3 (03/04)

Au Ho Yeung

Chan Yu Hin, Michael

Chu Kit Ling

Lam Chun Yu

Lau Yuen Shan, Susan

Leung Chung Hin

Tam Tsz Yan, Patricia

Wong Lok Tin

Advisor

May C.M. Wong

Table of Contents

1. ABSTRACT

Great difficulties in communication between dentists and patients with hearing impairment were demonstrated in a number of studies conducted in UK and USA. There is little information regarding the existing situation in Hong Kong. The purpose of this study is to conduct a survey on the communication between dentists and the people with hearing impairment and to provide an oral health education talk and personal consultation to the people with hearing impairment.

Adult people with hearing impairment were selected as the target group. They were approached through organizations for the people with hearing impairment in Hong Kong. A self-completed structured questionnaire was designed to collect information on the level of hearing impairment, dental habits, experience of difficulties in communication during dental visits, modes of communication used, views on the effectiveness of different modifications and modes of communication.

Altogether 216 completed questionnaires were collected and used for analysis. 76% of the respondents who had dental visits within the last 5 years experienced difficulties in communication during their dental visits. More of the respondents with moderate or severe hearing impairment experienced difficulties in communication during their visits (82%, 81% respectively) than those with mild hearing impairment (34%, $p=0.001$). People with mild hearing impairment preferred verbal communication (i.e. Speech, 72%) when communicating with dentists and found modifications on verbal communication to be useful for dentists to aid communication (56% - 89%). People with severe hearing impairment preferred written communication (38%) and sign language (26%) and found these modes to be more useful compared to other modes (85% and 74% respectively). The use of body language or gestures and sign language were found to be effective for dentists to aid communication for people with different level of hearing impairment.

Great difficulties in communication were experienced by people with hearing impairment when communicating with their dentists. People with moderate and severe hearing impairment were found to experience greater difficulties compared to people with mild hearing impairment. For dentists to communicate with the hearing impaired patients, the

effective modes of communication depend largely on the patients' level of hearing impairment.

2. INTRODUCTION

Deafness (Hearing impairment) is defined as the sense of hearing which is nonfunctional for the ordinary purpose of life.[1] Deafness can be categorized into congenital and adventitious. Congenital deafness includes hereditary, prenatal and perinatal groups.[1] The hereditary group develops deafness due to genetic influences like incomplete development of inner ear. The prenatal group develops deafness due to a variety of noxious influences upon the developing embryo and the perinatal group develops deafness due to any one of a number of accidents at the time of birth itself, shortly before or within the earliest hours or days after birth. The adventitious deafness includes deafness acquired from viral infection, injury or drug toxicity.[1]

Actually there is diversity and different methodologies to define hearing impairment,[2] it is typically used to refer to any decrease of sensitivity to sound below normal level.[3] The classification of hearing impairment adopted by the Hong Kong SAR government comprised six degrees of hearing impairment.[4] Hearing loss up to 25 dB was defined as normal while hearing loss greater than 90 dB was defined as profound. There were four degrees in between which are mild, moderate, moderately severe and severe. In 2003, there were an estimated 41,146 people with hearing impairment in Hong Kong.[4]

"Deafness produces a severe communication handicap and a major impediment for deaf people in attaining their greatest potential for full participation in society".[5] The difficulties in communication that patients with hearing impairment encountered during dental visits was investigated through a number of studies in UK and USA.[1,5,6-12] Generally, great difficulties in communication between dentists and patients with hearing impairment were demonstrated. For instance, difficulties arise when the patients were being called from the waiting room and to make the patients understand what would take place at the dental visit.[11]

Out from these studies, modifications necessary to aid the communication with hearing impaired patients had been suggested which included facing the patients or donning the masks while speaking, making sure the speech was slow and clear, speak loudly, speak towards the ear with better hearing ability, reduce background noise in the clinic, note writing and diagrammatic representation while explaining complicated ideas.[5,8,9]

Effective communication with a person with hearing impairment relies on all modes of linguistic expression and reception: sound, sight and sensibility.[13] Some people with hearing impairment may hear well with the use of an appropriate hearing aid, particularly if the hearing impairment has been acquired after the development of normal spoken language. Thus modifications suggested above should be useful in aiding the communication between the dentists and people with hearing impairment. However the preferred mode of communication for people with hearing impairment also relies on the residual hearing, or in other words, on the degree of hearing loss.[13] Thus, the use of body language or gestures, sign language, getting help from the sign language interpreter, lip-reading might also be needed when communicating with people with hearing impairment.

However, the literatures only revealed the difficulties in communication between dentists and people with hearing impairment in the western part of the world. Given the fact that there is little information regarding the existing situation in Hong Kong. Our group decided to conduct a survey to investigate the communication between dentists and people with hearing impairment. This is probably the first local investigation into this research area.

3. AIM

To conduct a survey to investigate the communication between dentists and people with hearing impairment.

4. OBJECTIVES

1) To describe the experience of difficulties in communication by people with hearing impairment during dental visits.

2) To describe the modes of communication used by people with hearing impairment and their dentists.

3) To describe the preferred mode of communication used by people with hearing impairment and their views on the effectiveness of different modifications and modes of communication.

4) To investigate the relationships between experience of difficulties in communication, modes of communication and level of hearing impairment.

5) To provide an oral health education talk and personal consultation to people with hearing impairment.

5. METHODS AND MATERIALS

5.1 Target Group

Adults aged over 18 with any degree of hearing impairment were selected as the target group of this project. They were approached through organizations for the people with hearing impairment in Hong Kong.

5.2 Organizations and Centers for the People with Hearing Impairment

A list of the organizations for people with hearing impairment was obtained from the Internet Yellow Pages Hong Kong (www.yp.com.hk). As adults with hearing impairment were chosen as the target group of this project, schools for the hearing impaired were excluded, leaving four organizations in the list. Only three out of the four organizations were able to be contacted. Three centers from one of the organizations had been involved. An explanatory letter (Appendix I) was sent to the following centers:

1) Hong Kong Association for the Deaf
2) The Hong Kong Society for the Deaf, Hong Kong Centre
3) The Hong Kong Society for the Deaf, Kowloon Centre
4) The Hong Kong Society for the Deaf, the New Territories Centre
5) Y's Men's Centre for the Deaf, HK Chinese YMCA

The proposal of the project including the aim and objectives of the project (Appendix II), a copy of the questionnaire and the outline of the oral health education talk were also sent to the coordinators in the centers.

5.3 Questionnaire Design and Survey Procedures

A structured questionnaire with closed-ended questions (Appendices III, IV) was designed based on the literatures concerning communication with hearing impaired patients published previously.[5,8,9,14] It comprised of two parts.

The first part was to collect the respondents' personal information such as:

- Age
- Gender
- Degree of hearing impairment
- Use of hearing aids
- Understanding of sign language and lip-reading.

The second part focused on the dental habits and communication with dentists including:

- Time since last dental visit
- Habit of regular dental visit
- Difficulties in communication encountered during dental visits
- Modes of communication being used by people with hearing impairment and their dentists
- Preferred mode of communication
- Views on the effectiveness of different modifications and modes of communication.

After the formulation of the questionnaire, it was sent to the coordinators of the centers and some suggestions were given by them. About 20 questionnaires, as a trial, were completed by the people with hearing impairment during the preliminary center visits. The questionnaire was then modified to the final version.

The questionnaires were distributed in three methods. The first method was to distribute the questionnaires to people with hearing impairment who attending the oral health education talk. The second method was to distribute the questionnaires to people with hearing impairment attending other activities in the centers through the centre coordinators during the survey period. The third method was to set up a counter so that people with hearing impairment could get the questionnaires when they entered the centers.

The questionnaire was filled in primarily through self-completion with or without assistance. For those who needed assistance, they were either helped by a sign language interpreter or by us through body language or gestures. Toothpaste or mouth rinse as souvenirs were given to those who completed the questionnaires.

5.4 Oral Health Education Talk and Personal Consultation

An oral health education talk, which was a PowerPoint show, was given to the people with hearing impairment at three centers. They were the Hong Kong Society for the Deaf, Kowloon Centre, the Hong Kong Society for the Deaf, the New Territories Centre and Y's Men's Centre for the Deaf, HK Chinese YMCA. Oral health leaflets collected from the government Oral Health Education Unit were distributed to the participants.

The content of the talk included:

- The importance of oral health
- The aetiology, prevention and treatment of dental caries and periodontal disease
- The treatment options of missing teeth, such as implant, RPD, bridge and complete denture
- Bleaching
- Selection of an appropriate toothbrush
- Use of toothpaste with fluoride and proper use of mouthrinses
- Proper toothbrushing and flossing technique
- The relationship between diet and oral health.

In order to facilitate people with hearing impairment in understanding the contents of the talk, the contents were translated by a sign language interpreter simultaneously.

At the end of the talk, a personal consultation session was arranged. Some tooth models, electric toothbrushes and prosthesis borrowed from the School of Hygienists from The Prince Philip Dental Hospital were displayed and used during the personal consultation session. Participants were encouraged to ask the questions they concerned about oral health individually. Oral examination was provided whenever necessary.

5.5 Data Analysis

The data collected from survey were input as Excel Worksheet into computer. Analysis was performed using SPSS 11.5. Frequency distributions of background information, dental habits, experience of difficulties in communication during dental visits, modes of communication and their preference, views on the effectiveness of the modifications or modes of communication that could be used by dentists to aid communication were tabulated. Chi-squared tests were performed to investigate the relationships between experience of difficulties in communication, modes of communication and level of hearing impairment. The level of significance of the tests was set to be 0.05.

6. RESULTS

6.1 Background Information of the Respondents

A total of 241 questionnaires were collected from five centers for the hearing impaired. From that, 25 were voided due to incompleteness, contradictory answers and incompatibility with our target group. Therefore data from the remaining 216 questionnaires were used for analysis. All of the percentages presented in this section were calculated based on the valid sample of each question, meaning that missing data was subtracted from the sample pool. Background information of the respondents is summarized in Table 1.

The majority of the respondents were in the age group 26-55 (73%) and more of them were female (62%). Most of the respondents were severely hearing impaired (64%). About one third of the respondents were born with hearing impairment (34%). More than half of them purchased hearing aids (64%) and 68% of the hearing aids purchased were of the post-auricular type. Over half (54%) of the respondents who purchased hearing aids used them frequently and 45% of them found that the hearing aids moderately improve their hearing, while 23% experienced profound improvement. 80% of the respondents understood sign language and 48% understood lip-reading.

Table 1. Background Information of the Respondents (n=216).

	Number of Subjects	Percentage
Age		
18-25	27	12.5
26-35	54	25.0
36-45	49	22.7
46-55	54	25.0
>56	32	14.8
Gender		
Male	79	37.6
Female	131	62.4
Hearing Impairment		
Level of Hearing Impairment (without hearing aid)		
Mild	18	8.3
Moderate	60	27.8
Severe	138	63.9
Cause of Hearing Impairment		
Congenital	71	33.6
Acquired	140	66.4
Purchase of Hearing Aids		
No	78	36.3
Yes	137	63.7
Type of Hearing Aid		
Post-auricular Aids	83	68.0
In the Ear Aids	24	19.7
Body-worn Aids	15	12.3
Hearing Aid Usage Frequency		
Frequently	66	54.1
Occasionally	27	22.1
Seldom	20	16.4
Never	9	7.4
Level of Improvement Achieved with Hearing Aid		
Profound	26	22.5
Moderate	54	44.6
Little	28	23.1
None	13	10.7
Understand Sign Language		
Yes	172	79.6
No	44	20.4
Understand Lip-reading		
Yes	104	48.1
No	112	51.6

6.2 Dental Habits and Difficulties Encountered during Dental Visits

130 of the 216 respondents (61%) visited dentists within the last 5 years, while 15% had visited dentists beyond 5 years and 24% had never been to a dentist (Table 2). Among those who had dental visits within the last 5 years (i.e. 130 respondents), 60% had regular dental visits and most of them had it once a year (62%). For those who did not have regular dental visit, the reasons for not doing so were summarized in Table 2, "Cost is expensive" and "No oral problems" were the major reasons (40% and 23% respectively). 98 of the 130 respondents (76%) who had dental visits within the last 5 years experienced difficulties in communication during their dental visits (Table 2).

Among those who experienced difficulties (i.e. 98 respondents), about two third (66%) of them found it difficult in understanding what the dentists say, 39% of them had difficulty in expressing themselves while 5% had difficulties in both. The respondents were asked to specify in what situations they experienced difficulties. The most difficult situation was when the patients had to understand his/her conditions through communicating with the dentists (41%), followed by expressing their oral health problems and requests (36%), appointment booking (34%) and following instructions given by the dentists (31%). Situations causing the least difficulty were understanding of oral health knowledge (19%) and discussing treatment plan with their dentists (21%).

Table 2. Dental Habits and Difficulties in Communication Encountered during Dental Visits.

	Number of Subjects	Percentage
Last Dental Visit		
Within 1 year	65	30.5
1 to 3 years	37	17.4
3 to 5 years	28	13.1
> 5 years	32	15.0
Never Been	51	23.9
Regular Dental Visit (those who had dental visits within the last 5 years)		
Yes	**77**	**59.7**
Frequency		
Once per year	46	62.2
Twice per year	14	18.9
Three times or more per year	14	18.9
No	**52**	**40.3**
Reasons (Multiple Responses)		
No oral problems	12	23.1
Difficulty in communication	6	11.5
No time	9	17.3
Cost is expensive	21	40.4
Long distance	7	13.5
Long waiting time in between appointments	5	9.6
Fear of dentist	5	9.6
Others	3	5.8
Difficulties in Communication Encountered during Dental Visits (those who had dental visits within the last 5 years)		
Experience of any difficulties		
Yes	98	76.0
No	31	24.0
Difficulties Identified		
Cannot express oneself only	33	33.7
Cannot understand the dentist only	60	61.2
Both	5	5.1
Situations in which Difficulties Encountered (Multiple Responses)		
Appointment booking	33	33.7
Expressing problems and requests	35	35.7
Understanding one's condition	40	40.8
Following Instructions given by dentists	30	30.6
Discussing treatment plan with dentists	21	21.4
Understanding oral health knowledge	19	19.4

6.3 Modes of Communication and their Effectiveness

For respondents who had dental visits within the last 5 years (i.e. 130 respondents), they were asked to report on the modes of communication they used to communicate with their dentists and multiple answers were allowed (Table 3). "Speech" (verbal communication) and "In writing" (written communication) were mostly used (45% and 39% respectively). For other modes, each was no greater than 20%. The respondents were then asked to report on the modes of communication their dentists used. Again "Speech" and "In writing" were mostly used (55% and 40% respectively).

All respondents (216), including those who had no dental visits within the last 5 years were asked to choose their preferred mode of communication (Table 3). The preferred modes of communication were similarly distributed among the following three: "Speech", "Sign language" and "In writing" (23%, 21% and 29% respectively).

The respondents who had dental visits within the last 5 years were asked whether their dentists had used a list of nine modifications or modes of communication to aid communication (multiple responses were allowed, Table 3). All respondents, including those who had no dental visits within the last 5 years were asked whether these modifications or modes of communication were useful to aid communication (Table 3). 77% of the respondents reported that the dentists did speak slowly and clearly in order to achieve better communication and 34% of the respondents thought this modification was very useful and 41% of them thought it was fairly useful. 60% of the respondents reported that dentists did use writing as a mode of communication, 79% of the respondents thought this mode to be useful (39% very useful, 40% fairly useful). 51% reported that dentists did speak louder and 53% of them thought this modification to be useful. Speaking face-to-face without the surgical masks and using body language and gestures were the other two methods used by the dentist more and 71% and 56% of the respondents respectively thought these two methods to be useful.

Table 3. Modes of Communication Used and their Effectiveness

	Percentage
How the Respondents Communicate with dentists (for those who had dental visits within the last 5 years)	
Speech	45.4
Lip-reading	20.0
Body language/gesture	17.7
Sign language	14.6
In writing	38.5
Sign language interpreter	10.0
How Dentists Communicate with the Respondents (for those who had dental visits within the last 5 years)	
Speech	55.4
Body language/gesture	13.8
Sign language	11.5
In writing	40.0
Sign language interpreter	9.2
The Preferred Mode of Communication (for all respondents)	
Speech	22.9
Lip-reading	8.9
Body language/gesture	6.1
Sign language	21.0
In writing	29.4
Sign language interpreter	11.7
Modifications or Modes of Communication Dentists Used to aid Communication (for those who had dental visits within the last 5 years)	
Speak slowly and clearly	76.9
Speak face to face, without wearing the masks	44.6
Speak loudly	50.8
Speak towards the ear with better hearing ability	32.3
Reduce background noise in the clinic	28.5
Body language/gesture	49.2
Using sign language	26.2
Help from sign language interpreter	20.0
In writing and diagrams	60.0

Effectiveness of Modifications or Modes of Communication (for all respondents)

	Not Useful	Fairly Useful	Very Useful
Speak slowly and clearly	24.2	41.4	34.4
Speak face to face, without wearing the masks	43.9	23.4	32.7
Speak loudly	47.4	24.7	27.9
Speak towards the ear with better hearing ability	50.0	23.8	26.2
Reduce background noise in the clinic	49.8	28.6	21.6
Body language/gesture	29.1	46.9	23.9
Using sign language	30.4	32.7	36.9
Help from sign language interpreter	36.7	27.4	35.8
In writing and diagrams	20.6	40.2	39.3

6.4 Relationships between Difficulties Encountered, Modes of Communication and Level of Hearing Impairment

Significant relationship between the experience of difficulties in communication during dental visits and the level of hearing impairment was found. More of the respondents with moderate or severe hearing impairment experienced difficulties in communication during their visits (82%, 81% respectively) than those with mild hearing impairment (34%, $p=0.001$). 84% of respondents who understood sign language experienced difficulties in communication during their visits compared to 54% of those who did not understand sign language ($p=0.001$). 86% of respondents who understood lip-reading experienced difficulties in communication during their visits compared to 66% of those who did not understand lip-reading ($p=0.013$). Relationship between the level of hearing impairment and the understanding of sign language and lip-reading were investigated. It was found that significantly fewer of the respondents with mild hearing impairment understood sign language and lip-reading (39% and 28% respectively) compared to those with moderate and severe impairment (67% and 62% , 91% and 45% respectively, $p<0.05$).

Regarding the modes of communication the respondents used to communicate with their dentists, respondents with mild hearing impairment were found to use "Speech" more (79%) compared to those who were moderately impaired (64%) or severely impaired (36%, $p<0.001$, Table 4). Those with mild hearing impairment were also found to use lip-reading and writing less (0% and 7% respectively) compared to those who were moderately impaired (33% and 21%) or severely impaired (18% and 82%, $p<0.05$). No significant association between the use of other modes of communication and the level of hearing impairment were found ($p>0.05$, Table 4).

Comparing the preferred mode of communication among the three groups (Table 4), more of the respondents with mild or moderate hearing impairment respondents chose "Speech" (72% and 38% respectively) compared to severely hearing impaired (10%). Those who were severely impaired chose writing more (38%, $p<0.001$).

Table 4. Relationships between Level of Hearing Impairment and Modes of Communication.

		Level of Hearing Impairment			p-value
		Mild (%)	Moderate (%)	Severe (%)	
How the Respondents Communicate with dentists					
Speech	Yes	78.6	64.1	29.9	
	No	21.4	35.9	70.1	<0.001
Lip-reading	Yes	0.0	33.3	16.9	
	No	100.0	66.7	83.1	0.016
Body language/gesture	Yes	7.1	20.5	18.2	
	No	92.9	79.5	81.8	0.523
Sign language	Yes	14.3	10.3	16.9	
	No	85.7	89.7	83.1	0.634
In writing	Yes	7.1	20.5	53.2	
	No	92.9	79.5	46.8	<0.001
Sign language interpreter	Yes	0.0	15.4	9.1	
	No	100.0	84.6	90.9	0.237
The Preferred Mode of Communication Chosen by Respondents					
Speech		72.2	38.3	9.6	
Lip-reading		0.0	15.0	7.4	
Body language/gesture		0.0	5.0	7.4	
Sign language		16.7	11.7	25.7	<0.001
In writing		11.1	15.0	38.2	
Sign language interpreter		0.0	15.0	11.8	

In order to understand the relationships between the level of hearing impairment and the effectiveness of modifications or modes of communication that could be used by dentists to aid communication, some analysis were performed and summarized in Table 5. Respondents with severe hearing impairment generally found modifications related to verbal communication less useful. On the other hand, respondents with mild and moderate hearing impairment generally found these modifications more useful. For example, of those who were severely impaired, 31% found "Speaking slowly and clearly" was not useful, 52% found "Speaking face to face without the mask" not useful, 61% of them found "Speaking louder" not useful, 66% found "Speaking towards the ear with better hearing" not useful and 59% found "Reducing noise in the clinic" not useful. Among those who had mild and moderate impairment, these percentages were significantly lower ($p<0.05$). On the other hand, more of the moderately and severely hearing impaired found that help from sign-language interpreters (39% and 37% respectively) and communicating through writing and diagrams (42% and 39% respectively) were more useful compared to those with mild level of impairment (17% and 22% respectively, $p< 0.05$). No difference in usefulness of body language and sign language were found among the three groups ($p>0.05$, Table 5).

6.5 Oral Health Education Talk

Three talks were held with about 58 participants from three centers. The talk and the consultation session lasted for about one and a half hours.

Table 5. Relationships between Levels of Hearing Impairment and Effectiveness of Modifications or Modes of Communication

		Level of Hearing Impairment			
		Mild (%)	Moderate (%)	Severe (%)	p-value
Speak slowly and clearly	Not useful	11.1	11.7	31.4	
	Fairly useful	33.3	40.0	43.1	0.002
	Very useful	55.6	48.3	25.5	
Speak face to face, without wearing the masks	Not useful	44.4	25.4	51.8	
	Fairly useful	22.2	28.8	21.2	0.017
	Very useful	33.3	45.8	27.0	
Speak loudly	Not useful	27.8	23.3	60.6	
	Fairly useful	33.3	31.7	20.4	<0.001
	Very useful	38.9	45.0	19.0	
Speak towards the ear with better hearing ability	Not useful	22.2	21.7	66.2	
	Fairly useful	38.9	36.7	16.2	<0.001
	Very useful	38.9	41.7	17.6	
Reduce background noise in the clinic	Not useful	16.7	39.0	58.8	
	Fairly useful	50.0	28.8	25.7	0.002
	Very useful	33.3	32.2	15.4	
Body language/gesture	Not useful	38.9	20.3	31.6	
	Fairly useful	44.4	44.1	48.5	0.119
	Very useful	16.7	35.6	19.9	
Using sign language	Not useful	50.0	33.9	26.3	
	Fairly useful	27.8	37.3	31.4	0.133
	Very useful	22.2	28.8	42.3	
Help from sign language interpreter	Not useful	61.1	42.4	31.2	
	Fairly useful	22.2	18.6	31.9	0.050
	Very useful	16.7	39.0	37.0	
In writing and diagrams	Not useful	50.0	25.4	14.6	
	Fairly useful	27.8	35.6	43.8	0.009
	Very useful	22.2	39.0	41.6	

7. DISCUSSION

7.1 Survey Design

The questionnaire for the people with hearing impairment was originally designed to be self-completed, and in case if people needed assistance, help from the sign language interpreter and us through body language and gestures were made available. Throughout the survey, the assistance needed was more than that of expectation.

In order to recruit more people with hearing impairment to come and participant in the questionnaire survey, oral health talks and personal consultation sessions were arranged. However with the limited time for publicizing the events, not many people (altogether 58) came to the talks at the three centers. Nevertheless, the centers allowed us to distribute the questionnaires to those people with hearing impairment attending other activities organized by the centers and setting up of counters, so that people coming in the centers could also get the questionnaires and helped to filled in. With all these efforts, 254 questionnaires were distributed and 216 completed questionnaires were used for the analysis.

Most of the participants at the oral health talks were actively involved and paid good attention. They were also encouraged to ask questions during the talk when they found any difficulties in understanding the contents. In some occasions, they discussed the contents of the talk among themselves, so that it caused some disturbances to the smoothness of the talks. Communication difficulties were experienced to a certain extent, especially in one of the centers where many participants were severely hearing impaired. Teaching models, photographs, verbal explanation and sign language translation were needed to ensure that the participants could understand the contents of the oral health education talk. The sign language translators who assisted in the talks were usually not dental professional personnel, or with reasonable knowledge in dentistry. This made the sign language translation process to be less effective, it might be helpful if the translators knew about the contents of the talk in advance. In addition, from the feedbacks of the participants, they would like to have more oral examination and treatment delivered to them, than just oral health education talk and personal consultation.

7.2 Difficulties Encountered during Dental Visits

Only those respondents who had dental visits within the last 5 years were asked about whether they experienced difficulties in communication during their dental visits because it is believed that they should have better memory to recall than those who had not visited dentists for a long time. Among these respondents, 76% experienced difficulties in communication during their dental visits. More respondents with moderate or severe hearing impairment experienced difficulties in communication than those with mild hearing impairment. This finding corresponded to the previous studies that great difficulties in communication existed between dentists and people with hearing impairment.[6-12]

It was also found that more respondents who understood sign language and lip-reading experienced difficulties than those who did not understand sign language and lip-reading. From the results, significant relationships between the knowledge of sign language, lip-reading and level of hearing impairment were found. Sign language users were usually severely hearing impaired, or it can be said that majority of the severely hearing impaired tended to use sign language more frequently, thereby more familiar with sign language. In the same token, majority of the severely hearing impaired tended to be the lip-readers. This explained the reason why more respondents who understood sign language and lip-reading experienced difficulties than those who did not understand sign language and lip-reading as they tended to be more severely hearing impaired.

It was reported by the majority of the respondents that hearing aids were able to improve their hearing and therefore it was suggested that hearing-impaired patients should wear their hearing aids when communicating with dentists.

7.3 Modes of Communication and their Effectiveness

From the results, it was found that people with mild hearing impairment preferred verbal communication (i.e. Speech, 72%) when communicating with dentists and found modifications on verbal communication such as "Speak slowly and clearly", "Speak face to face, without wearing the masks", "Speak loudly", "Speak into the ear with better hearing ability" and "Reduce background noise in the clinic" to be useful for dentists to aid

communication (56% - 89%). This is probably due to the hearing loss of the people with mild hearing impairment is not severe and with the advancement of hearing aids, this group of people can still be communicated through verbal communication as long as modifications have been taken place.

On the other hand, people with severe hearing impairment preferred written communication and found this mode to be more useful compared to other modes. To them, modifications on verbal communication were not useful for dentists to aid communication.

No significance differences in the usefulness of body language or gestures and sign language were found among people with different level of hearing impairment and around 70% of them thought these two modes to be useful. This suggested these are universal modes that could be used for people with different level of hearing impairment.

7.4 Further Research

According to the original plan of the project, a questionnaire for dentists was also constructed. About 300 dentists were selected systematically (every 1 in 5) from the member list of the Hong Kong Dental Council arranged alphabetically. The selected dentists were invited to answer the questionnaire through a telephone survey. However, the response rate of this telephone survey was very low (20%) because the dentists were not able to be contacted as they were seeing their patients. Upon discussion among the group members and the supervisor, it was decided that data collected from the telephone survey was to be disregarded in the analysis.

The survey on the dentists can give information on the communication with hearing impaired patients from the dentists points of views and these information can also be compared to the information obtained from the people with hearing impairment. Thus with the improvement of the survey design, for instance using mailed questionnaires instead of telephone survey, hopefully more dentists would be willing to participate to yield a more satisfactory response rate.

8. CONCLUSION

1. Great difficulties in communication were experienced by people with hearing impairment when communicating with their dentists. People with moderate and severe hearing impairment were found to experience greater difficulties compared to people with mild hearing impairment.

2. People with mild hearing impairment used verbal communication more while those with severe hearing impairment used written communication more in communicating with their dentists.

3. People with mild hearing impairment preferred to use verbal communication and found modifications related to verbal communication useful for the dentists to aid communication. However, people with severe hearing impairment found these modifications not useful and preferred written communication more.

4. The use of body language or gestures and sign language were found to be effective for dentists to aid communication for people with different level of hearing impairment.

9. RECOMMENDATION

For dentists to communicate with the hearing impaired patients, the effective modes of communication depend largely on the patients' level of hearing impairment (Table 6). For patients with mild hearing impairment, verbal communication would be good enough when modifications were taken place such as, speaking slowly and clearly, loudly, without mask, with gesture, to the better ear, without background noise. For patients with moderate hearing impairment, verbal communication could still be used in addition to note writing. For the severe hearing impaired patients, it would be effective to use note writing. The uses of sign language and body language or gestures were also encouraged for patients with different level of hearing impairment. It is always encouraged that the dentists should discuss with their patients the best modes of communicate before proceeding into any treatment and the patients are encouraged to wear their hearing aids during communication with dentists.

Table 6. Summary of Hearing-impaired Patient Management

Level of impairment	Mild	Moderate	Severe
Mode of communication	1) Verbal	1) Verbal IN ADDITION TO 2) Note writing 3) sign language	1) Sign language 2) Note writing 3) Interpreter 4) Verbal depends on lip-reading

*** speaking slowly, loudly, without mask, with gesture, to the better ear, without background noise can aid the communication with patients with mild and moderate hearing impairment.

10. ACKNOWLEDGEMENTS

To end with, we would like to express our gratitude to Ms May Wong for her kindness and professional guidance in every aspect of the project.

We would like to thank Dr. Franklin She and Dr. Mark Law for their professional advice which facilitated our questionnaire construction.

We would also like to express our appreciation to Dr. Haiping Tan who had accompanied and assisted us throughout the project and Dr. Daisy Yau for her supervision during the personal consultation sessions.

We are particularly grateful to the following centers:-

1) Hong Kong Association for the Deaf
2) The Hong Kong Society for the Deaf, Hong Kong Centre
3) The Hong Kong Society for the Deaf, Kowloon Centre
4) The Hong Kong Society for the Deaf, the New Territories Centre
5) Y's Men's Centre for the Deaf, HK Chinese YMCA

that have given us so much advice, support, co-operation and encouragement by their active participation.

11. REFERENCES

1. Brownstein MP (1974). Dental Care for the Deaf Child. Dental Clinics of North America; 18(3):643-649.

2. Wallhagen MI (2002). Hearing Impairment. Annual Review of Nursing Research; 20:341-368.

3. Webpage of the Office of the Special Education, Curry School of Education at the University of Virginia. http://curry.edschool.virginia.edu/sped/projects/ose/categories/hi.html (15/02/2004)

4. Webpage of the Hong Kong Special Administrative Region of The People's Republic of China - Government Information Centre. http://www.hwfb.gov.hk/hw/english/whatsnew/RPP/C06.doc (15/02/2004)

5. LoCascio E, Rubinstein L, Aymard LL (1985). Deafness and Dental Health care. Clinical Preventive Dentistry; 7(4):11-16.

6. Ebert DA, Herkerling PS (1995). Communication with Deaf Patients. Journal of American Medical Association; 273(3):227-229.

7. Manley MCG, Lewis C (1986). Deafness and Dental Care. British Dental Journal; 161(6): 219-221.

8. Baker C (2001). You and Your Hearing-Impaired Patient. New York State Dental Journal; 67(8): 36-37.

9. Hector S, Gelbier S (1989). Communication with Deaf People in the Surgery Setting. British Dental Journal; 167(10): 350-352.

10. Sfikas PM (2000). Treating Hearing-Impaired People. Journal of American Dental Association; 131(1): 108-110.

11. Champion J, Holt R (2000). Dental Care for children and young people who have a hearing impairment. British Dental Journal; 189(3): 155-159.

12. Geboy MJ (1985). Communication and Behavior Management in Dentistry. Baltimore: Williams & Wilkins, pp1-12.

13. Webpage of the National Institute on Deafness and Other Communication Disorders, National Institutes of Health, MD USA. http://www.nidcd.nih.gov (15/02/2004)

14. Dhillon RS, East CA (1994). Ear, Nose and Throat and Head and Neck Surgery: An Illustrated Color Text. Edinburgh:Churchill Livingstone.

Appendix I

Dear Sir/Madam:

We are the fourth year students of the Faculty of Dentistry of the University of Hong Kong. We are conducting a community health project focusing on the dental problem encountered by the hearing impaired. The objectives of our project are to provide oral health education and personal consultation and to determine the dental experience and management of the hearing-impaired patients. The project consists of a presentation on the oral health knowledge and a survey to obtain information about the dental experience. We would like to obtain your permission to conduct such project in your center. It would be very much appreciated if a presentation and survey can be conducted in your center on any date from 1/3/04 – 14/3/04.

The proposal of the project and the questionnaire for the survey are enclosed in the letter. The details of the presentation are included in the proposal. The questionnaire will remain anonymous and all the information obtained will be kept in strict confidence.

Thank you for your attention. Would you please contact Alvin Au at 96701989 or Michael Chan at 95027307 when a decision has been made. We are looking forward to your reply.

Yours Sincerely,

Group Respresentative

Project Supervisor

Au Ho Yeung
Group 4.3
HKU

May Wong
Faculty of Dentistry,

Appendix II

Proposal of the Dental Public Health Project 2004 (Group 4.3)

***Project Title*: Communication between Dentists and the Hearing-impaired People**

Aims & Objectives

1. To provide oral health education to the members of the association
2. to conduct a survey on patient-dentist communications
3. to provide personal consultation on oral health

Details of the Talk

Date: 1 – 14/3/2004
Time: Morning or afternoon (each session is about two hour)
Venue: to be confirmed (activities room)
Target participants: about 50 people

Rundown:

15mins	Introduction
45 - 60mins	Talk on oral health
15 - 20mins	Q&A for the talk
30mins	Questionnaire and souvenirs
30mins	Personal consultation (optional)

Content of the oral health talk:

1. Structures and function of the teeth (optional)
2. Diet and oral health
3. Oral diseases
   a. Decayed tooth and filling materials
   b. Plaque and Gum disease
4. Treatment option for replacing missing tooth
5. Tooth discoloration and bleaching
6. General oral health care
7. Conclusion

Resources required:

1. Volunteers, about 10 people with knowledge of sign language
2. AV aids – projector, screen, microphone etc.
3. Chairs and tables

牙醫與聽障人士之溝通

我們是香港大學牙醫學院學生，現正與香港聾人福利促進會香港中心合辦舉行口腔推廣活動。我們希望透過以下的問卷調查從而了解牙醫與聽障人士的溝通。本問卷共有 17 題，敬請你回答所有問題。在回答問題時，請在你選取的答案旁之方格內 "√"。完成問卷後，你將會獲得紀念品一份，多謝你的參與！

個人資料：

1. 年齡（歲）：□18 以下　□18-25　□26-35　□36-45　□46-55　□56 或以上

2. 性別：　□男　□女

3. 你聽障的程度（沒有助聽器時）：　□輕度　□中度　□嚴重

4. 聽障原因：　□先天　□後天（自 _____年 開始）

5. 有沒有購買助聽器？　□有 → 種類：□耳後式　□耳內式　□袋裝式
   → 有沒有使用助聽器：　□經常　□間中　□很少　□沒有
   → 帶助聽器後聽覺改善程度：　□很大　□中等　□很少　□沒有

   □沒有

6. 明白手語嗎？　□明白　□不明白

7. 明白讀唇嗎？　□明白　□不明白

你看牙醫的經驗和情況：

8. 你上一次看牙醫是何時？　□一年以內　□一至三年　□三至五年
   □五年以上（跳到第 16 題）　□從來沒有看過（跳到第 16 題）

9. 有沒有定期檢查牙齒？
   □有 → □每年一次　□每年兩次　□每年三次或以上
   □無 → 爲什麼？（可選多項）
   □牙齒沒有問題　□溝通不便　□沒時間　□太貴
   □路程太遠　□排期太長　□怕見牙醫
   □其他 － 請說明：_____

10. 看牙醫時，溝通上有沒有困難？　□有
    □沒有（跳到第 13 題）

11. 什麼困難？（可選多項）　□難以表達自己　□不明白牙醫的講

（轉下頁）

12. 什麼情況下有困難？（可選多項）

□預約時間　□講自己的問題和要求　□向牙醫了解自己的情況
□按牙醫的指示做　□討論治療計劃　□明白口腔衛生知識

13. 你怎樣和牙醫溝通？（可選多項）

□說話　□讀唇　□身體語言／動作　□手語　□筆談
□有人協助翻譯手語

14. 牙醫怎樣和你溝通？（可選多項）

□說話　□身體語言／動作　□手語　□筆談　□有人協助翻譯手語

15. 牙醫有沒有使用以下方法幫助和你溝通？

	有	沒有
・慢慢講清楚	□	□
・脫下外科口罩，面對面才說話	□	□
・說話時大聲一些	□	□
・對著聽覺較好的耳朵說話	□	□
・減低診所裡的雜音	□	□
・使用身體語言／動作	□	□
・用手語	□	□
・請人協助翻譯手語	□	□
・筆談	□	□

16. 你和牙醫溝通時用什麼方法最好？<u>（只選一項）</u>

□說話　□讀唇　□身體語言／動作　□手語　□筆談
□有人協助翻譯手語

17. 有一些幫助溝通的方法提議給牙醫使用，請選擇它們的有效程度，在適當的方格內 "√"

	沒有用	有些用	非常有用
・慢慢講清楚	□	□	□
・脫下外科口罩，面對面才說話	□	□	□
・說話時大聲一些	□	□	□
・對著聽覺較好的耳朵說話	□	□	□
・減低診所裡的雜音	□	□	□
・使用身體語言／動作	□	□	□
・用手語	□	□	□
・請人協助翻譯手語	□	□	□
・筆談	□	□	□

（完）

Appendix IV

Survey on Communication between Dentist and the Hearing Impaired From Faculty of Dentistry, HKU

We are the dental students from the University of Hong Kong. Now, we are conducting a survey focusing on the subject concerning communication between dentists and the hearing impaired. There are seventeen questions and please complete all of them. Please put a "√" in the suitable boxes. After completed the survey, souvenir will be given. Thank you for your generous help.

Personal Information:

1. Age: □> 18 □18-25 □26-35 □36-45 □46-55 <□56

2. Gender: □Male □Female

2. Level of hearing impairment (without hearing aids): □mild □moderate □severe

4. Cause of hearing impairment: □Congenital □Acquired (start from_____)

5. Do you purchase any hearing aids?

□Yes → Type：□ Post-auricular Aids □ In the Ear Aids □ Body-worn Aids

→ Do you use it frequently： □Frequently □Occasionally □Seldom □Never

→ What is the level of improvement achieved with the hearing aid:

□Profound □Moderate □Little □None

□No

6. Do you understand sign language? □Yes □No

7. Do you understand lip reading? □Yes □No

Dental Habits and Experiences:

8. When was your last dental visit? □within one year □one to three years □three to five years □more than five years(go to Question 16) □never been (go to Question 16)

9. Do you have regular dental checkup?

□Yes → □Once per year □Twice per year □Three times or more per year

□No → Why ? (Can choose more than one)

□ No oral problems □ Difficulty in communication □ No time □ Cost is expensive

□ Long distance □ Long waiting time in between appointments □ Fear of dentist

□ Others — Please specify : _____

10. Did you find any difficulties to communicate with dentists?

□Always □Sometimes □Rarely □Never (Go to Question 13)

11. If you encountered the problem, what would it be? (Can choose more than one)

□Cannot express yourself □Cannot understand the dentist

12. Under what situations would you encounter difficulties? (Can choose more than one)

□Appointment booking □Expressing problems and requests

□Understanding your condition □Following instructions

□Discussing treatment plan □Understanding oral health knowledge

13. Which way do you use to communicate with the dentist? (Can choose more than one)

□Speech □Lip-reading □Body language/gesture

□Sign language □In writing □Sign language interpreter

14. Which way does your dentist use to communicate with your? (Can choose more than one)

□Speech □Body language/gesture □Sign language

□In writing □Sign language interpreter

15. Do your dentist use the following method to aid communication?

	Yes	No
· Speak slowly and clearly	□	□
· Speak face to face, without wearing the masks	□	□
· Speak loudly	□	□
· Speak towards the ear with better hearing ability	□	□
· Reduce background noise in the clinic	□	□
· Body language/gesture	□	□
· Using sign language	□	□
· Help from sign language interpreter	□	□
· In writing and diagrams	□	□

16. Which of the following would you consider the **best** method of communication between you and your dentist? (Can choose one only)

□Speech □Lip-reading □Body language/gesture

□Sign language □Sign language interpreter □In writing

17. The following is a list of communication methods suggested to the dentists. According to the effectiveness, please place a "√" in the appropriate box.

	Useless	Fairly Useful	Very Useful
· Speak slowly and clearly	□	□	□
· Speak face to face, without wearing the masks	□	□	□
· Speak loudly	□	□	□
· Speak towards the ear with better hearing ability	□	□	□
· Reduce background noise in the clinic	□	□	□
· Body language/gesture	□	□	□
· Using sign language	□	□	□
· Help from sign language interpreter	□	□	□
· In writing and diagrams	□	□	□

End